CHAPTER 1: MAINTENANCE

Contents

1. Preface 1-1
   CAUTION 1-2
   WARNING 1-3
2. Work Precautions 1-4
3. Exterior Cover Removal 1-6
4. Installation 1-9

1. Preface

This manual provides Technical Service Information for the RISOGRAPH **FR Series** duplicators.

This manual is published as a reference guide for use by RISO Group (RISO Kagaku Corp./ RISO,INC./RISO EUROPE Ltd.) Certified Technical Representatives experienced in duplicator repair and service.

This manual also provides procedures for removing and installing major components. Following these procedures will minimize machine malfunctions. This information and format will also increase technical representatives' awareness and experience regarding repairs necessary to insure end-user satisfaction.

If assistance is required, please contact one of the following:

[RISO Kagaku Corp.]
Overseas Technical Section, Technical Support Department
2-5-1, Akanehama, Narashino-shi, Chiba 275, JAPAN
TEL: (0474)52-4111 FAX: (0474)52-3106 TELEX: 252-2298RISO J

[RISO EUROPE LTD.]
Solar House, 305 Ballards Lane, North Finchley, London N12 8NP,United Kingdom
TEL: (0181)446-1188 FAX: (0181)446-9547

[RISO, INC.]

NOTE : Before attempting to correct machine malfunctions, study the Technical Manual and make sure all questions and/or concerns have been satisfied. If necessary, please use the Technical Hotline:

TECHNICAL HOTLINE

800-578-7476
(Emergency Technical Assistance Only!!!)

REFERENCE	ADDRESSES	FOR
A	RISO, INC. Tech. Support Center 310 Andover Street Danvers, MA 01923	Technical Support Operations Correspondence and Technical Training
B	RISO,INC. REPAIR DEPT. 310 Andover Street Danvers, MA 01923	Repairs and Warranty Claims

CAUTION

[Handling of Lithium Battery]

- **Never fail to follow the following instructions when you discard the used lithium battery.**

1. **Never let the battery short-circuited.**
   If the (+) and (-) terminals contact each other or metal materials, the battery will be short-circuited. If the batteries are collected and stored inorderly or one upon another, the above-mentioned case will occur.

- DANGER -

If the battery is short-circuited, it will heat up and may in some cases explode into fire.

2. **Never heat up the battery.**

- DANGER -

If you heat the battery up to more than 100°C or put it into the fire, it may burn dangerously or explode.

3. **Never disassemble the battery or press it into deformation.**

- DANGER -

If you disassemble the battery, the gas pouring out of the inside may hurt your throat or the negative lithium may heat up into fire.
If the battery is pressed into deformation, the liquid inside may leak out of the sealed part or the battery may be short-circuited inside an explode.

4. **Never fail to keep the battery out of reach of children.**
   If you put the battery within reach of children, they may swallow it down. Should they swallow the battery, immediately consult the doctor.

[Replacement of the Lithium Battery]

1. **The lithium battery must be replaced by a trained and authorized service technician.**
2. **The battery must be replaced only with the same or equivalent type recommended by the manufacturer.**
3. **Discard used batteries according to the manufacturer's instructions.**

!! WARNING !!

Important Safety Precautions

1. Always disconnect electrical supply before placing hands in the machine.

I. To avoid injuries:
Be sure to disconnect the electrical power before disassembling, assembling,or when making adjustments on the machine.

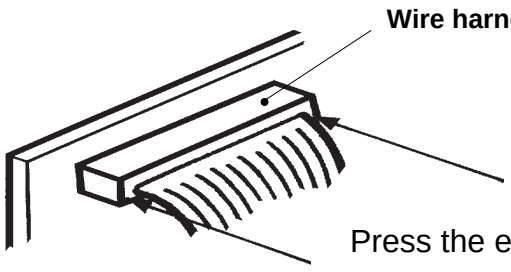
II. Protection of the machine:
Make sure to turn OFF the power to the machine before plugging or unplugging the electrical connectors, or when connecting a Meter.

2. Always connect electrical connectors firmly.

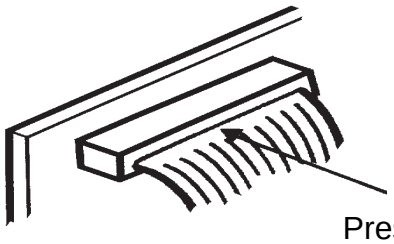
I. To avoid electrical failure:
The connectors must be connected firmly together and onto the PCBs.
Press on the ends of the connectors and then on the middle to ensure a firm fit.

II. Protection of the electrical components:
The electrical components may be damaged due to short circuits caused by a loose connector.

FIRST



THEN



2. Work Precautions

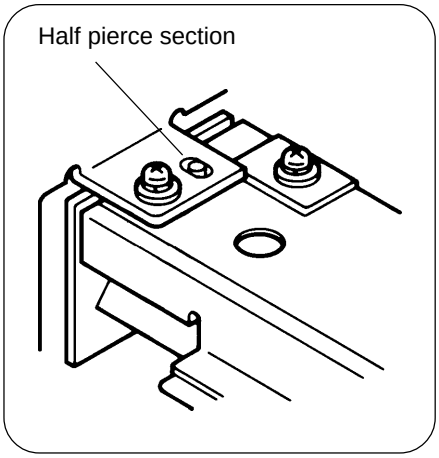
Inspection

If you discover any defects or problems during an inspection, fix the problems or if necessary take steps such as replacing a part.

Removal

Check the problem area. At the same time, examine the cause of the problem and determine whether the part needs to be removed or disassembled. Next proceed according to the procedures presented in the Technical Manual. In cases where, for example, it is necessary to disassemble areas with large numbers of parts, parts which are similar to each other, or parts which are the same on the left and right, sort the parts so that you do not mix them up during reassembly.

(1) Carefully sort the removed parts.
(2) Distinguish between parts which are being replaced and those which will be reused.
(3) When replacing screws, etc., be sure to use the specified sizes.



Assembly and Installation

Unless specified otherwise, perform the removal procedures in reverse during assembly and installation. In cases where protrusions or holes are provided to assist in positioning parts, use them for accurate positioning and securing.
(Protrusions and holes for positioning parts ⇨ Half pierce section)

Tools

Using tools other than those specified can lead to injury or damage screws and parts. Have all the tools necessary for the work available.

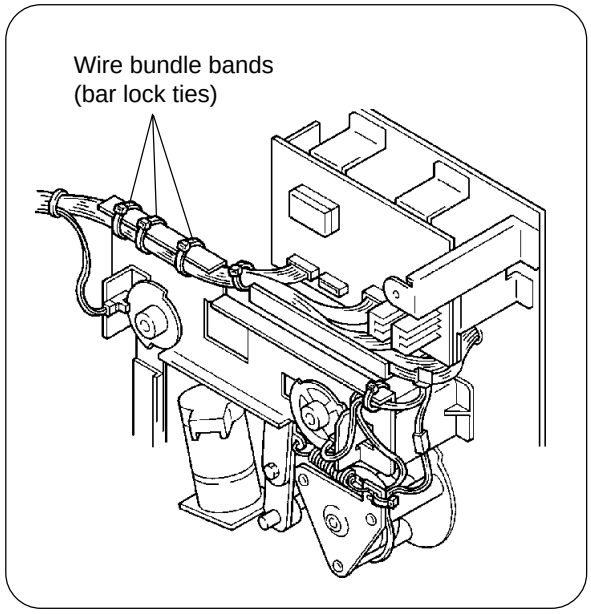
<Standard Tool list>

Type	Tip size	Shaft length, etc.
Phillips screwdriver	No. 2 No. 2 No. 2 No. 1	(250 mm) (100 mm-150 mm) (stubby type) (75 mm-100 mm)
Standard screwdriver	6 mm 3 mm 1.8 mm	(100 mm-150 mm) (100 mm-150 mm) (precision type)
Nut driver (box driver)	8 mm 7 mm	(100 mm-150 mm) (100 mm-150 mm)
High frequency driver	2.5 mm	
Spanners (may be double-ended)	5 mm 8 mm Monkey	5.5 mm 7 mm 10 mm 13 mm
Hex wrenches	5.0 mm 4.0 mm 3.0 mm 2.5 mm 2.0 mm 1.5 mm	

Type	Remarks
Steel scale	150 mm
Gap gauge	
Radial cutting pliers	
Pliers	
Nipper	
Small flashlight	
Multimeter	
Soldering iron	20 W-30 W
File	Flat, round

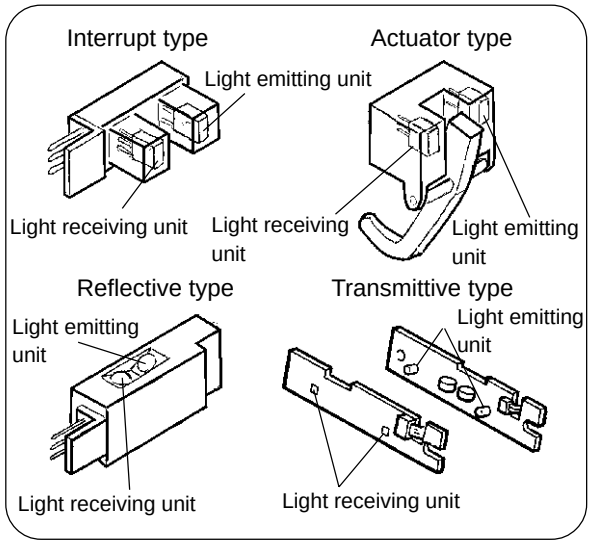
Electrical system work

- After removing wire bundles, fasten them with wire bundle bands (bar lock ties) so that they will not sag.
- When installing parts, be careful to avoid pinching or damaging the wire bundles.
- If a fuse blows, always replace it with one with the specified capacity. Using a fuse with a larger capacity can not only damage parts, but may cause fires.
- Be careful not to drop image scanners, thermal print heads, and other sensors as they can be easily damaged.



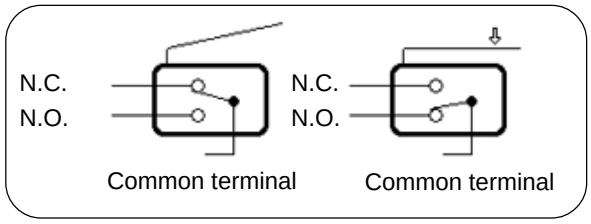
Sensor types

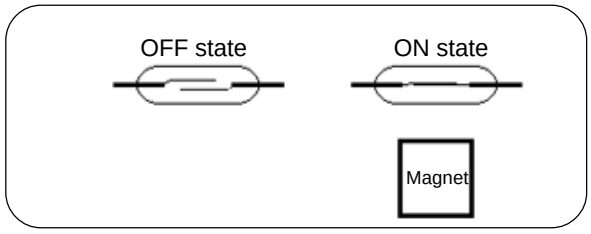
- Photo-electric sensors may be broadly divided into the following four types: interrupt types (U-shaped), actuator types, reflective types, and transmittive types.
- Magnetic sensors use Hall ICs, which react to the magnetic force in magnets.
- Always turn off the power before plugging or unplugging sensor connectors.



Switch types

- Microswitches may be divided between normally open (NO) types and normally closed (NC) types.
  With an NO connection, an internal contact is connected when the switch actuator is pressed.
  With an NC connection, an internal contact is disconnected when the switch actuator is pressed.
- Magnetic lead switches are switches in which an internal contact is connected in reaction to the magnetic force of a magnet.



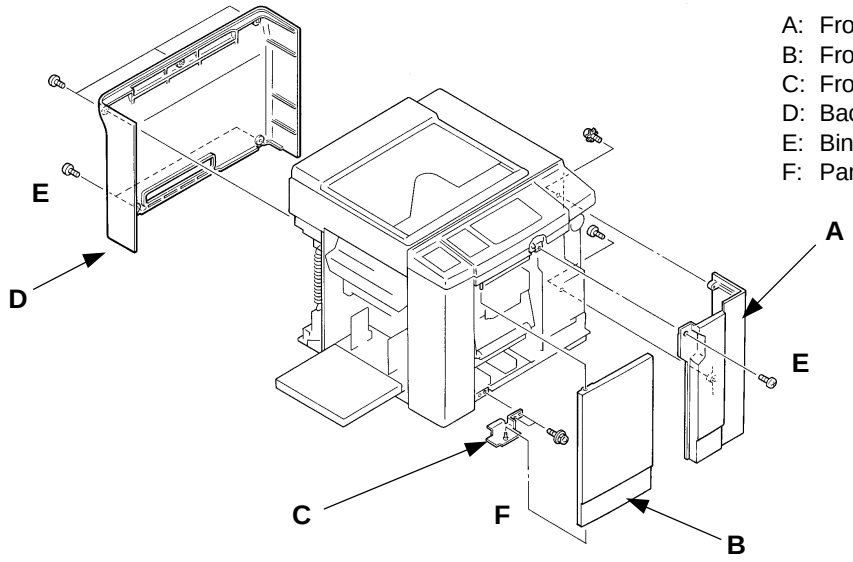


3. Exterior Cover Removal

- Removal

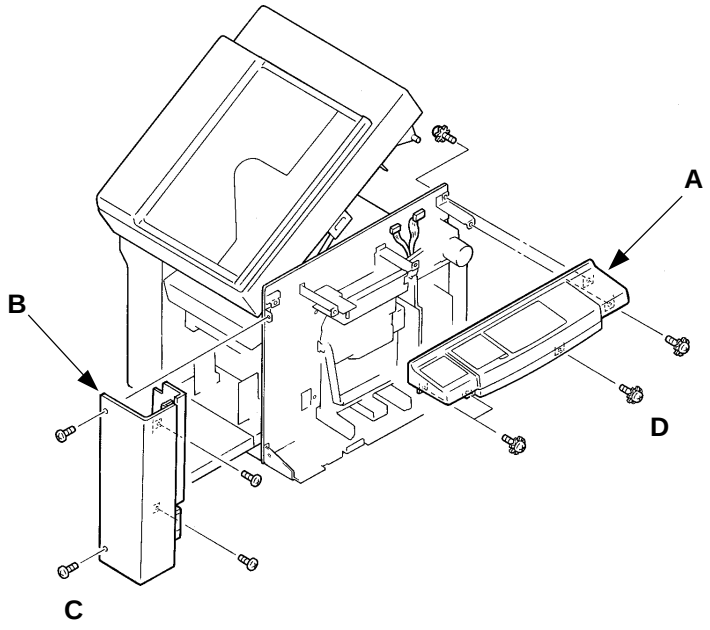
*Disconnect a power cord and remove the covers.

- Back cover
- Front cover —— Remove two mounting screws of the Front cover hinge.
- Front right cover



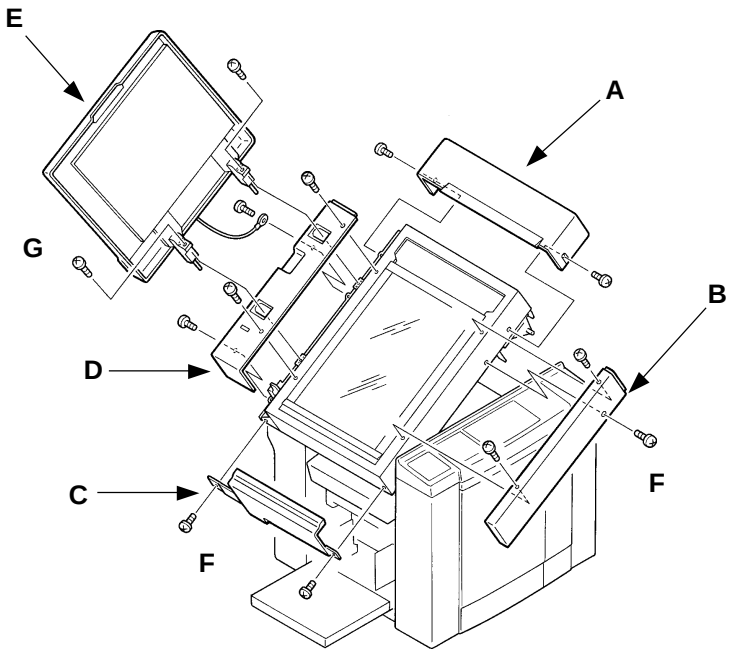
A: Front right cover
B: Front cover
C: Front cover hinge
D: Back cover
E: Bind-head Screw M4x8
F: Pan-head Screw SW.W M4x8

- Operation panel unit —— Remove the Front right cover and disconnect two connectors to remove the Panel unit.
- Front left cover



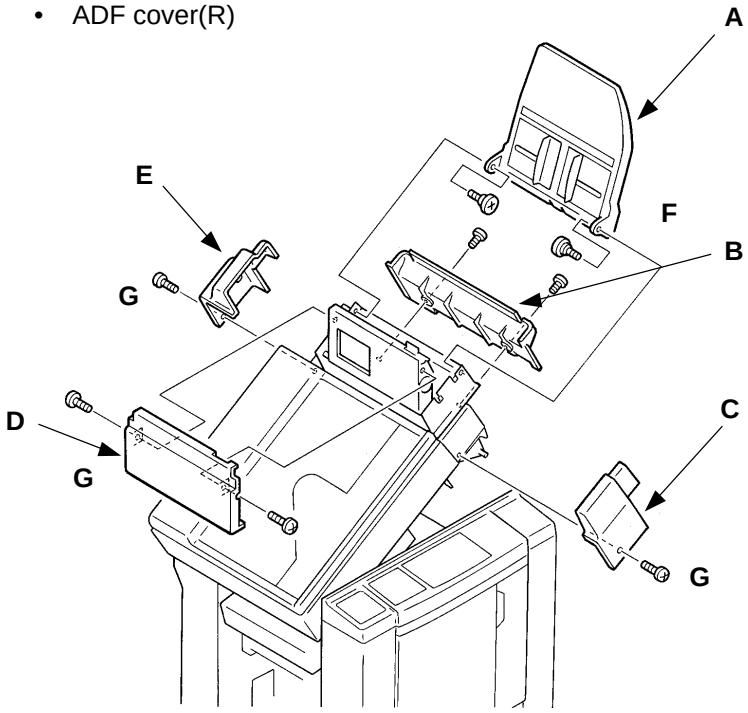
A: Operation panel unit
B: Front left cover
C: Bind-head Screw M4x8
D: Bind-head Screw TW M4x8

- Stage cover ———— Remove a ground wire to remove the cover.
- Scanner cover(Right)
- Scanner cover(R) ——— Remove them after the Stage cover.
- Scanner cover (F)
- Scanner cover(Left) —— Remove them after the Stage cover, Scanner cover(R), and Scanner cover(F) in that order.



A: Scanner cover(Right)
B: Scanner cover(F)
C: Scanner cover(Left)
D: Scanner cover(R)
E: Stage cover
F: Bind-head Screw M4x8
G: Bind-head Screw M4x10

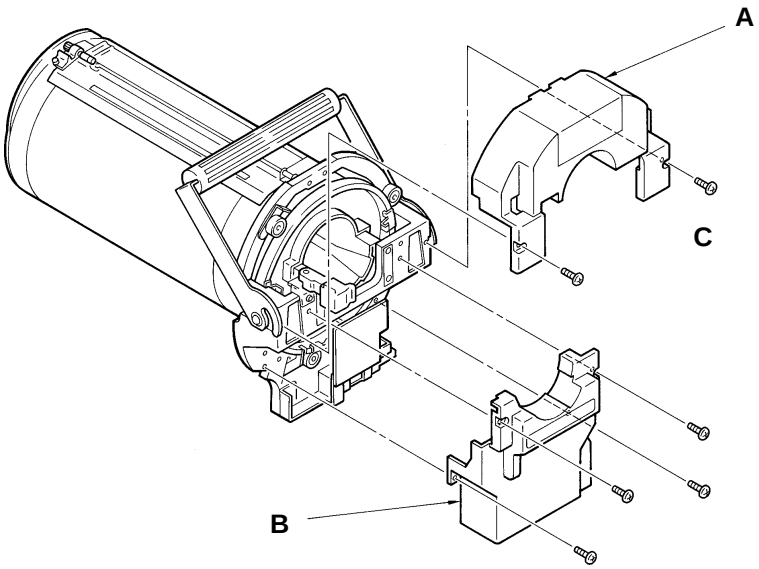
- Original tray
- ADF cover(Right)
- ADF cover(F)
- ADF cover(Left)
- ADF cover(R)



A: Original tray
B: ADF cover(Right)
C: ADF cover(F)
D: ADF cover(Left)
E: ADF cover(R)
F: Original tray shaft
G: Bind-head Screw M4x8

- Drum cover(Upper)
- Drum cover(Lower)

A: Drum cover(Upper)
B: Drum cover(Lower)
C: Bind-head screw M3x6

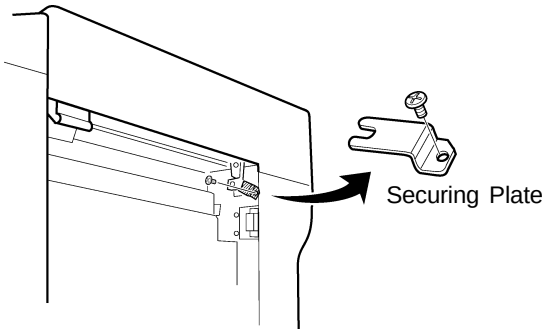


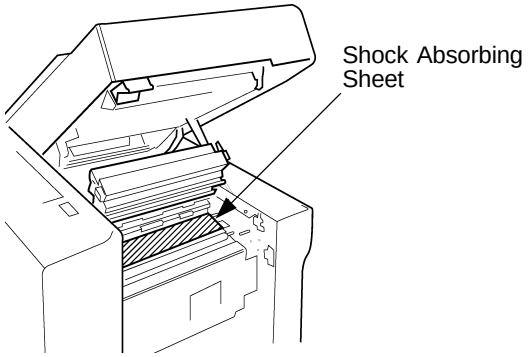
4. Installation

Be sure to follow the procedures below in installation.

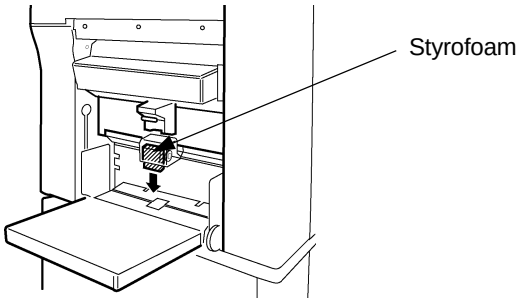
(1) Removing Protectors

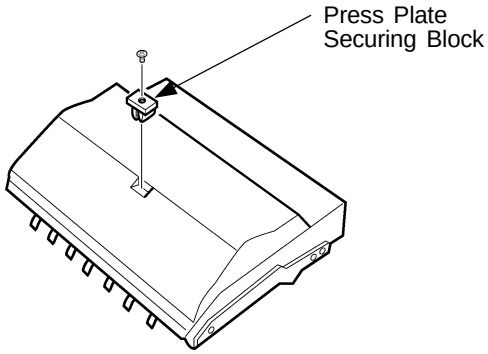
Paper Receiving Area



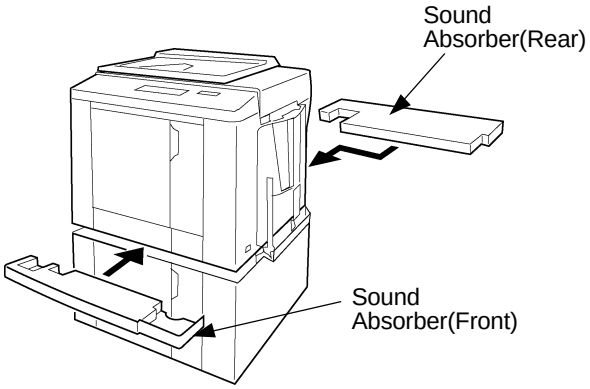


Paper Feed Area

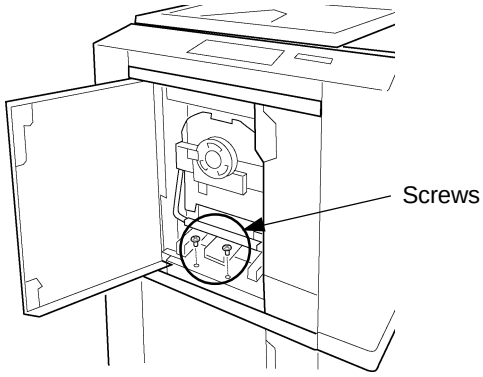




(2) Attaching Sound Absorbers



Insert two Sound Absorbers(Rear and Front) between the RISOGRAPH and the stand.



Open the Front Cover and secure the Sound Absorber(Front) with two screws.

Installation location

- Do not install the machine in any of the following locations.

(1) Those subject to direct sunlight or any bright location such as by a window (If you must install in such a location, put a curtain or the like over the window.)
(2) Those where the temperature changes drastically
(3) Those that are too hot, cold, humid, or dry
Temperature range: 15° centigrade - 30° centigrade
Humidity range: 40% - 70% No condensation allowed
(4) Those with radiant heat sources and any locations in the direct path of air from air conditioners, heaters
(5) Any poorly ventilated location
(6) Dusty atmosphere
(7) Any tilted location
(Installation height difference: 10 mm max. front - rear, 10 mm max. left - right)

Electrical connection

- Plug the plug securely into the socket so that there is no problem with the contact in the power supply plug section.
- Do not use any triplets or extension cords.
- Do not allow any other machine to stand on or crush the power cord.

Ground connection

- Always ground this machine to prevent electrical shock in the unlikely event of electrical leakage.